



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,223	08/27/2003	Motoshige Igarashi	241865US2	4312

22850 7590 05/18/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

HUYNH, ANDY

ART UNIT	PAPER NUMBER
----------	--------------

2818

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,223

Applicant(s)

IGARASHI, MOTOSHIGE

Examiner

Andy Huynh

Art Unit

2818

aw

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 4-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08-27-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

In the Response to the Restriction Requirement dated April 12, 2004, Applicant's election with traverse of claims 1-3 drawn to a device is acknowledged. Accordingly, claims 4-6 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 35 § 1.142(b) and MPEP § 821.03. Applicant has the right to file a divisional application covering the subject matter of the non-elected claims 4-6, drawn to a method.

The traversal is on the ground(s) that the reason is speculative. That is not found persuasive because

- (a) The above two different classifications show the need for two entirely different fields of a search.
- (b) The inventions are in different statutory classes which have different case law basis for examination.
- (c) Non-restriction would mean that if one of the inventions were held to be unpatentable then the other would also be inherently held to be unpatentable. Therefore, restriction is proper since there are apparently two different inventive concepts in making the device and in the device itself.

The requirement is still deemed proper and is therefore made **FINAL**.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file on August 27, 2003.

Information Disclosure Statement

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statement (IDS) filed August 27, 2003. The references cited on the PTOL 1449 form have been considered.

Claim Objections

Claims **1** and **3** are objected to because of the following informalities:

A “.” is missing after “A semiconductor device comprising” in claim **1**. Claim **3** is not dependent from a preceding claim. Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim **1** is rejected under 35 U.S.C. 102(b) as being anticipated by Gardner et al. (USP: 5,863,824 hereinafter referred to as “Gardner”).

Gardner discloses in Figs. 2A-2C and related text as set forth in column 2, lines 11-34, line 66-column 4, line 36; a semiconductor device comprises:

a plurality of gate electrode structures (203) formed on a semiconductor substrate (201), each of which comprises:

a gate insulating film (205) formed on said semiconductor substrate;

a gate electrode (203) formed on said gate insulating film; and

an offset spacer/a first spacer (207) formed on a side face of said gate electrode,

wherein respective lengths/channel length in said plurality of gate electrode structures are substantially uniform with one another, each of said lengths being defined as a sum of a gate length (l, Fig. 2A) extending on an interface between said gate insulating film and said gate electrode, and a width of said offset spacer extending on an interface between said offset spacer and said semiconductor substrate (col. 2, lines 11-34, line 67-col. 3, line 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. (USP: 5,863,824 hereinafter referred to as "Gardner"), in view of Aronowitz et al. (USP: 5,877,530 hereinafter referred to as "Aronowitz").

Gardner discloses the claim limitations except for the semiconductor device wherein said gate electrode includes a gate electrode having a rectangular section, an upwardly tapered gate electrode and a downwardly tapered gate electrode which are provided on the same semiconductor substrate. Aronowitz teaches in Fig. 2 an MOS device comprises a re-entrant or tapered gate electrode (24) formed on a substrate (2) to provide the desired tapered mask (col. 4, lines 11-14. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the re-entrant or tapered gate electrode, as taught by Aronowitz to provide the desired tapered mask during implantation of the substrate adjacent the channel region of the MOS device (col. 4, lines 1-3).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. (USP: 5,863,824 hereinafter referred to as "Gardner"), in view of Xiang et al. (USP: 6,703,648 hereinafter referred to as "Xiang").

Gardner discloses the claim limitations except for the semiconductor device wherein a pair of shallow source/drain regions and a pair of deep source/drain regions are formed to form a MOSFET, said regions in each of said pairs being formed in said semiconductor substrate on opposite sides of a portion of said semiconductor substrate immediately under said gate electrode. Xiang teaches in Fig. 1 of prior art a conventional MOSFET device comprises shallow source and drain extensions (28) and deep source and drain regions (20) being formed in a semiconductor substrate (10) on opposite sides of a portion of said semiconductor substrate immediately under a gate electrode (14) to reduce short channel effects as set forth in column 1, lines 29-30, lines 48-55. It would have been obvious to one of ordinary skill in the art at the time

Art Unit: 2818

of the invention was made to form the MOSFET device comprises shallow source and drain extensions and deep source and drain regions being formed in a semiconductor substrate on opposite sides of a portion of said semiconductor substrate immediately under a gate electrode, as taught by Xiang to reduce and improve short channel effects.

Conclusion

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P. 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

AH

May 14, 2004



Andy Huynh

Patent Examiner